

CLAIMS

1. Method for the production of expandable plastics granulate from a plastics melt and a fluid blowing agent which is at an elevated pressure within a predetermined pressure range only partly soluble in the melt, the method comprising the following steps:
- dispersion of the blowing agent in the melt,
 - retaining of the mixture within a predetermined pressure range for a predetermined retention time,
 - cooling of the melt impregnated by the blowing agent to a temperature which is several °C above the solidification temperature of the melt, and
 - granulating the cooled mixture,
- the method being characterised in that the mixture is acted upon by static mixing elements and by this mixing is avoided segregation.
2. Method according to claim 1, characterised in that the dispersion takes place with extensive shearing of the melt while fine droplets of the blowing agent are formed and that the mixture is then during a predetermined retention time subjected to little shearing.
3. Method according to claim 1 or 2, characterised in that the cooling of the mixture and the simultaneously performed mixing are carried out at least partly by the same components.
4. Method according to any one of claims 1 to 3, characterised in that the cooled mixture is extruded through nozzles and the formed strands are chilled by a coolant, particularly water and by disintegration formed into granules.

5. Method according to any one of claims 1 to 4, characterised in that in addition to the blowing agent at least one additive is added to the plastics melt.

6. Equipment for carrying out the method according to
5 any one of claims 1 to 5, characterised by one or more static mixers (1, 2) for the impregnation of the plastics melt (A') by the fluid blowing agent (B), a cooler (3) for the impregnated melt whose heat exchange elements are in the form of built-in elements of a static mixer, and a
10 granulator (5).

7. Equipment according to claim 6, characterised in that a first static mixer (1) for the dispersion of the blowing agent and a second static mixer (2), which follows directly after the first one and serves for
15 impregnation are provided.

8. Equipment according to claim 6 or 7, characterised in that the cooler (3) is a static mixer whose elements crossing each other are formed as heat exchanging pipes.

9. Equipment according to any one of claims 6 to 8,
20 characterised in that the granulator (4) comprises a nozzle plate, a cooling bath and a cutting device.

10. Equipment according to any one of claims 6 to 9, characterised in that between the mixers (1, 2) for the impregnation of the plastics melt and the cooler (3) is
25 provided a pump (5) for the melt, particularly a gear pump.

11. Plant including an equipment according to any one of claims 6 to 10 which comprises, in addition, the following parts:

- a source (10) of plastics in which may be produced the plastics melt (A'),
- a source (20) of blowing agent by means of which may be carried a metered supply of the blowing agent (B), and
- a control unit (30) for controlled supply of the blowing agent adjusted according to the flow of melt.

12. Plant according to claim 11, characterised in that the source (10) of plastics comprises a polymerization reactor (12) for the production of the plastics from a monomer raw material (A) and a degassifier (14) for the polymer (A').

13. Plant according to claim 11, characterised in that the source (10) of plastics comprises a recycling device for the recycling of a thermoplastics, particularly thermoplastics of the same kind, and a melting device, particularly a heated extruder.

14. Plant according to claim 11, characterised in that the source (10) of plastics is a melting device, particularly a heated extruder for a granulate thermoplastic.

15. Use of a plant according to claim 11 for the production of "expandable polystyrene", EPS, from newly produced or recycled polystyrene, while preferably a low-boiling hydrocarbon, particularly pentane, or a mixture of such hydrocarbons, is used as the blowing agent (B).

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